TITLE OF THE INVENTION

PACKING UNIT FOR REFRIGERATOR

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of Korean Patent Application No. 2004-007088, filed on February 03, 2004, in the Korean Intellectual Property Office, the disclosure of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0002] The present invention relates to a packing unit for a refrigerator, and more particularly, to a packing unit for a refrigerator which protects the refrigerator against an external shock or external matter during storage and transport of the refrigerator.

2. Description of the Related Art

[0003] Recently a refrigerator has become larger and a quality of the refrigerator has been enhanced to meet a variety of customer demands. The electric home appliance including the refrigerator is packed in a packing unit to be stored and transported, which protects an external appearance against damage.

[0004] In FIG. 1, a conventional packing unit comprises an outer case 3, an upper shock-absorber 4 accommodated in the outer case 3 to be connected to an upper part of the refrigerator 1 and a lower shock-absorber 6 accommodated in the outer case 3 to be connected to a lower part of the refrigerator 1.

[0005] The outer case 3 protects an outer appearance of the refrigerator 20 against an external matter such as dust and the like. The upper and lower shock absorbers 4 and 6 protect the refrigerator 1 against an external shock.

[0006] However, the conventional packing unit requires additional pack volume corresponding to a protrusion of a door handle 8 mounted on a front surface of the refrigerator 1, which increases an amount of space required for transport and storage of the refrigerator 1, and increases manufacturing costs.

[0007] Further, if the door handle is detached to be stored, an additional component to store the door handle is required, which will increase manufacturing costs.

SUMMARY OF THE INVENTION

[0008] Accordingly, it is an aspect of the present invention to provide a packing unit for a refrigerator in which a pack volume is reduced and an amount of space required for storage and transport decreases.

[0009] Additional aspects and/or advantages of the invention will be set forth in part in the description which follows and, in part, will be obvious from the description, or may be learned by practice of the invention.

[0010] The foregoing and/or other aspects of the present invention are achieved by providing a packing unit for a refrigerator having a detachable door handle, the packing unit comprising: an outer case to protect an external appearance of the refrigerator, an upper shock absorber accommodated in the outer case and connected to an upper part of the refrigerator and formed with a handle accommodating part to accommodate the door handle detached from the refrigerator, and a lower shock absorber accommodated in the outer case and connected to a lower part of the refrigerator.

[0011] According to an aspect of the invention, the handle accommodating part of the upper shock absorber is grooved to a predetermined depth in an upper part of the upper shock absorber to prevent the door handle accommodated therein from protruding from an outer surface of the upper shock absorber.

[0012] According to an aspect of the invention, the upper shock absorber comprises an expandable polystyrene material.

[0013] According to an aspect of the invention, the upper shock absorber comprises at least one air vent and connects to the upper part of the refrigerator.

[0014] According to an aspect of the invention, the door handle is forcedly fitted to the handle accommodating part.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] These and/or other aspects and advantages of the invention will become apparent and more readily appreciated from the following description of the embodiments, taken in conjunction with the accompanying drawings of which:

FIG. 1 is a sectional view showing a refrigerator packed in a conventional packing unit for a refrigerator;

FIG. 2 is a perspective view of a packing unit for a refrigerator according to an embodiment of the present invention;

FIG. 3 is a perpendicular sectional view of a refrigerator packed in the packing unit as shown in FIG. 2;

FIG. 4 a horizontal sectional view of a refrigerator packed in the packing unit as shown in FIG. 2;

FIG. 5 is a perspective view of an upper shock absorber of the packing unit for a refrigerator as shown in FIG. 2; and

FIG. 6 is a side view of an upper shock absorber of the packing unit for a refrigerator as shown in FIG. 2.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0016] Reference will now be made in detail to the embodiments of the present invention, examples of which are illustrated in the accompanying drawings, wherein like reference numerals refer to the like elements throughout. The embodiments are described below to explain the present invention by referring to the figures.

[0017] In FIGS. 2 through 4, a packing unit for a refrigerator according to an embodiment of the present invention comprises an outer case 30 to cover a refrigerator 20, an upper shock-absorber 40 accommodated in the outer case 30 to be connected to an upper part of the refrigerator 20 and formed with a handle accommodating part 42 to accommodate a door handle 22 detached from a front surface of the door 21 of the refrigerator 20 and a lower shock-

absorber 50 accommodated in the outer case 30 to be connected to a lower part of the refrigerator 20.

[0018] The outer case 30 comprises a space to accommodate a refrigerator 20 and which protects an outer appearance of the refrigerator 20 against external matter such dust and the like.

[0019] A size and a shape of the outer case 30 vary according to a size and shape of the refrigerator 20 for which the outer case 30 is used.

[0020] The upper and lower shock absorbers 40 and 50 cover an upper surface, a lower surface and a side surface of the refrigerator 20 and protect the refrigerator 20 against damage due to an external shock. Edges of the upper and lower shock absorbers 40 and 50 are curved inwardly, thereby being fitted to the upper and lower surfaces of the refrigerator 20, respectively. The upper and lower shock absorbers 40 and 50 are formed with air vents 44 and 54, respectively.

[0021] The door handle 22 is detachably mounted on a front surface of the door 21 of the refrigerator 20 and detached from the front surface of the refrigerator 20 and accommodated in the upper shock absorber 40 after the refrigerator 20 is assembled to put on the market, which reduces the pack volume needed.

[0022] In the embodiment of the present invention, the handle accommodating part 42 is formed in the upper shock absorber 40, but not limited thereto. That is, the handle accommodating part 42 may be formed in the lower shock absorber 50. However, in this case, the door handle 22 may be damaged, as a result of the lower part of the refrigerator 20 being damaged due to an external shock during transport and storage of the packed refrigerator 20.

[0023] Thus, it is advantageous that the door handle 22 may be accommodated in the upper shock absorber 40.

[0024] In FIGS. 5 and 6, the handle accommodating part 42 to accommodate the door handle 22 is grooved on an upper surface of the upper shock absorber 40. The handle accommodating part 42 may be grooved to a predetermined depth in the upper shock absorber 40 to accommodate the door handle 22 without protruding from an outer surface of the upper shock

absorber 40. Then, if a part of the upper shock absorber 40 is deformed by an external shock, the door handle 22 may not be directly influenced by the external shock.

[0025] A structure of the handle accommodating part 42 of the upper shock absorber 40 may vary according to the door handle 22 of the refrigerator 20.

[0026] The upper shock absorber 40 may be made of a variety of material as long as the damage of the refrigerator 20 can be protected. As an aspect of the present invention, expandable polystyrene may be used because it is superior in properties such as durability or shock absorbing.

[0027] The upper shock absorber 40 comprises at least one air vent 44 through which air passes out, which allows the upper shock absorber 40 to be connected to a top of the refrigerator 20 with ease. A position and a number of the air vent 44 may vary.

[0028] The door handle 22 is forcedly fitted to the handle accommodating part 42 due to the property of the material of the upper shock absorber 40. The door handle 22 may be accommodated in the handle accommodating part 42 in various ways as long as the door handle 22 is securely accommodated in the handle accommodating part 42.

[0029] The door handle 20 is elastically supported in the upper shock absorber 40 without an additional component to prevent the door handle 20 from detaching from the upper shock absorber 40. However, elements and/or techniques preventing the door handle 20 from detaching from the upper shock absorber 40, such as adhesive tapes, may be provided on the handle accommodating part 42 of the upper shock absorber 40.

[0030] As described above, the packing unit according to the present invention, does not require additional pack volume due to the door handle and the door handle is safely accommodated within an additional component.

[0031] Thus, more refrigerators can be loaded and transported, and manufacturing costs are reduced.

[0032] Although a few embodiments of the present invention have been shown and described, it would be appreciated by those skilled in the art that changes may be made in this

embodiment without departing from the principles and spirit of the invention, the scope of which is defined in the claims and their equivalents.